

USAWC STRATEGY RESEARCH PROJECT

**TRANSFORMING LOGISTICS: JOINT THEATER LOGISTICS**

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## **ABSTRACT**

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Effective and efficient management of joint theater logistics is a challenge for theater commanders. Current doctrine for joint theater logistics management provides broad non-directive guidance for developing a joint theater logistics system that can optimize support of deployed forces, provide a unified focus, and economize on limited infrastructure and resources. This paper describes the best way for combatant commanders to exercise control over joint theater logistics for major combat operations by utilizing available authorities and capabilities. It analyzes the elements of joint theater logistics, current doctrinal processes and capabilities, and the Focused Logistics Transformation Plan to produce new processes, tools, and rules to optimize joint logistics support. This analysis includes a description of the initiative to establish a Joint Force Support Component Command in Korea formed around the 19<sup>th</sup> Sustainment Command (Expeditionary). This paper concludes with identifying a logistical command structure that is the best option available to a Combatant or Joint Force Commander to achieve improved joint theater logistics. It identifies the need to develop joint doctrine that will integrate Service requirements into a specific joint logistics command structure, which can exercise as an organization in peace before executing contingency operations.



## TRANSFORMING LOGISTICS: JOINT THEATER LOGISTICS

Joint Theater Logistics (JTL): The adaptive ability to anticipate and respond to emerging theater logistics and support requirements. JTL allows the Joint Force Commander to apply logistics resources to generate and sustain full spectrum theater operations. JTL includes directive authority, processes and tools to achieve desired joint and combined effects and accomplish operational objectives.<sup>1</sup>

- Focused Logistics Roadmap Vol 1 Dec 2005

Support for continuous and distributed joint force operations requires joint logistics capabilities that are as agile and adaptive as the forces they support. Today's joint operations require U.S. forces capable of rapidly responding to the joint force commander. These forces must be able to employ all their resources and sustain operations immediately and simultaneously on arrival in distant, austere theaters.<sup>2</sup> In spite of efforts to increase operational reach and create self-sustaining modular formations, particularly for major combat operations that require land forces, improvements in theater logistics capabilities remain critical to receiving and sustaining these forces. Deployment, employment, and management of tailored theater logistics capabilities that achieve a balance between efficiency and effectiveness are essential to generation of land combat power.

The U.S. military is transforming to assure delivery of mission ready forces, with a reduced combat support and combat service support footprint in the joint area of operation, to better meet the needs of the joint force commander.<sup>3</sup> Transformation planners assume that "capacity, control, and assurance will result from improvements in technology and transformational innovations to processes, systems and organizations."<sup>4</sup> Accordingly, effective management and conduct of joint theater logistics operations are linchpins of DoD logistics transformation.

Current joint logistics doctrine provides general guidance for the control of theater logistics. It offers organizational solutions that are not well-developed or fully defined. Ultimately, current doctrine relies on the combatant commander and his logistics director (J4) to carefully define the joint theater logistics management plan during a deliberate planning process. It recommends assigning responsibilities to a variety of organizations, augmenting staffs, and establishing centers, offices, and boards.<sup>5</sup> Most of these options are not well-suited to the adaptive planning process used for crisis operations and lead to ad hoc organizations and procedures that are insufficient to meet the immediate deployment and sustainment needs of rapidly deploying forces. Even established theaters that operate under current doctrine are not fully utilizing authorities and capabilities available to improve their joint theater logistics.

The 2004 Focused Logistics Campaign Plan describes the joint logistics vision for getting logistics right now and into the future with the objective of providing the joint warfighter the right personnel, equipment, supplies, and support in the right place, at the right time, in the right quantities across the full range of military operations.<sup>6</sup> But our military leaders are now challenged to develop and improve joint theater logistics capabilities “in-stride”, while the U.S. military fights the Global War on Terrorism and meet its on-going national defense requirements. This paper describes the best way for combatant commanders to exercise control over joint theater logistics for major combat operations by utilizing available authorities and capabilities. Also, it identifies improvements anticipated from logistics transformation initiatives. It analyzes the elements of joint theater logistics, current doctrinal processes and capabilities, and the Focused Logistics Transformation Plan to produce new processes, tools, and rules to optimize joint logistics support. This analysis includes a description of the initiative to establish a Joint Force Support Component Command (JFSCC) in Korea formed around the 19<sup>th</sup> Sustainment Command (Expeditionary). JFSCC is an example of an organizational solution to improve JTLM with the application of doctrinal concepts and emerging capabilities to a mature Theater of Operation while it supports an armistice and prepares for war. This paper concludes with identifying a logistical command structure that is the best option available to a Combatant or Joint Force Commander to achieve improved joint theater logistics. It identifies the need to develop joint doctrine that will integrate Service requirements into a specific joint logistics command structure, which can exercise as an organization in peace before executing contingency operations. It concludes that the development of Focused Logistics Transformation capabilities will enhance the efficiency of JTLM through a unified structure capable of executing the theater logistics mission.

#### Joint Theater Logistics Requirements

As specified in Joint Doctrine the paramount requirement of joint theater logistics is to responsively meet the needs of a joint force, efficiently integrate national and theater efforts, and provide effective support.<sup>7</sup> Logistics principles, considerations, and doctrinal requirements guide joint logistics planners to ensure effectiveness and strive for efficiency in the use of scarce resources. Examination of these logistics principles, considerations, and requirements will provide a context to examine doctrinal options and logistics transformation initiatives to improve joint theater logistics. These principles and considerations are the criteria this paper will use to evaluate joint theater logistics support organizational structures.

Logistics principles include the following: responsiveness, the right support in the right quantity in the right place at the right time; simplicity, standardized clear and interoperable procedures; economy, using the fewest resources at the least cost and within acceptable levels of risk; attainability, the ability to provide supplies and services required; sustainability, the ability to maintain long-term support throughout the theater; and survivability, the capability to prevail in the face of potential destruction.<sup>8</sup>

In addition to logistics principles, logistics considerations provide additional guidance for determining theater logistics requirements and developing an efficient and effective joint theater logistics system. The fifteen logistics considerations identified in JP 4-0 provide the basis for efficiency and effectiveness criteria. Seven of these considerations are centered on effectiveness. The employment planning consideration focuses on the detailed planning for deployment and sustainment of forces. Determination of logistics factors is the consideration that may limit the strategic deployment, operational build-up, and effective tactical sustainment of forces. Integration of logistics planning with operational planning is an essential consideration for coordinated effort. Consideration of movement control is integral to the support of deployment operations and to sustainment. Industrial base requirements and contracting for supplies and services are additional planning considerations at the joint and theater level.<sup>9</sup>

The remaining eight considerations are centered on efficiency. A forward impetus is the consideration of synergizing information and logistics resources to provide rapid, continuous, and responsive support and the ability to shift resources to optimize support to the warfighter. The consideration of balance between combat and logistics forces early in an operation is critical to producing maximum combat power fully capable of mission success. Command and control of logistics considerations must ensure unity of command and best enable the combatant commander to exercise directive authority of logistics. Apportionment and allocation considerations are necessary for the effective and efficient distribution of limited resources. Accommodation for wartime requirements is the consideration of minimizing changes of logistics organizations and procedures in the transition from peace to war. Logistics discipline is the consideration of economy of supply and optimizing logistic resources. Logistics reserve is the consideration of determining appropriate stock levels for unanticipated contingencies and for exploiting success. Pre-positioning is the consideration of using available afloat and shore-based pre-positioned sustainment stocks. Finally, contracting for supplies and services is the consideration of leveraging local procurement and civilian service capabilities that enhance operations efficiently.<sup>10</sup>

## Transformation

Logistics transformation is a supporting component of the overall Department of Defense's (DoD) military transformation strategy. A dynamic campaign for change, transformation provides a centralized process to develop capabilities necessary to address current and future defense challenges in the 21<sup>st</sup> Century. More than the development and implementation of new technologies, transformation also produces new operational concepts, organizational structures, and relationships.<sup>11</sup> Military transformation strategy, a vital component of National Defense Strategy (NDS), focuses on the modernization and improvement of current core missions and seeks development of future capabilities that will not only change the way American forces fight but also change how the defense establishment does business.<sup>12</sup>

Logistics transformation efforts follow the approved Focused Logistics Joint Functional Concept (FL-JFC) as the strategic concept that "defines broad joint logistics capabilities that are necessary to deploy, employ, sustain, and re-deploy forces across the full spectrum of operations."<sup>13</sup> Focused Logistics intends to "provide the right personnel, equipment, supplies, and support in the right place, at the right time, and in the right quantities, across the full range of military operations."<sup>14</sup> The overarching FL concept networks all seven capabilities, one of which is Joint Theater Logistics Management, and integrates the other emerging logistics concepts of Joint Force Projection and Sustainment for Full Spectrum Operations, Force-Centric Logistics Enterprises (FLE) and Sense and Respond Logistics (S&RL).<sup>15</sup> The final objective of logistics transformation is:

Transformed logistics capabilities must support future joint forces that are fully integrated, expeditionary, networked, decentralized, adaptive, capable of decision superiority, and increasingly lethal. Logistics capabilities must support future joint operations that are continuous and distributed, across the full range of military operations. Future logistics capabilities must be born joint and fully integrated.<sup>16</sup>

This bold objective of logistics transformation provides the strategic direction and the criteria for the development of future JTLM initiatives to achieve greater logistics unity of effort.

### Focused Logistics Joint Functional Concept

The Under Secretary of Defense for Acquisition, Technology, and Logistics is the Defense Logistics Executive (DLE), who has the authority to integrate the global supply chain. DLE oversees the US Transportation Command (TRANSCOM), which serves as the Distribution Process Owner (DPO).<sup>17</sup> The DLE stated that the "Joint Requirements Oversight Council approved Focused Logistics Joint Functional Concept is DOD's concept for the comprehensive, integrated logistics capabilities necessary to support future joint warfighting capabilities."<sup>18</sup> The



DLE's strategy is to develop a Logistics Transformation Roadmap that effectively guides development and implementation of emerging capabilities and concepts to support Focused Logistics.<sup>19</sup>

The 2005 FL-JFC Roadmap fully integrated the FLE concept as mid-term initiatives (2005-2010) to accelerate logistics improvements. Three of the six FLE initiatives support end-to-end supply chain management and distribution and impact the processes and tools for improving management of joint theater logistics. The first of these is end-to-end distribution, which is the initiative to improve the flow of materiel to the user synchronized with deployment and sustainment efforts. It intends to provide better information in order to streamline the entire distribution system. Its new mechanisms integrate strategic, operational, and tactical systems that transcend traditional functional and organizational boundaries of all services and agencies.<sup>20</sup> The second is executive agent initiatives, which will create a formal process for aligning executive agents with warfighting requirements across the full spectrum of operations and rapidly respond to all deployments.<sup>21</sup> Effective executive agent assignments can identify or clarify a lead Service for support of a commodity, thereby eliminating redundancy, and bridge seams in support, enhancing the development of improved joint theater logistic systems and management.<sup>22</sup> The third is enterprise integration initiative to integrate information technologies needed to implement new business practices built on activities within the military services, the Combatant Commands and the Defense Logistics Agency. It will also incorporate financial control mechanisms for a single logistics billing system. Successful development and implementation of these capabilities will enhance the ability to create common user support arrangements, conduct financial management, and more effectively exercise directive authority for logistics.<sup>23</sup>

The emerging concept of Joint Force Projection and Sustainment for Full Spectrum Operations is the initiative to develop a single adaptive system that combines joint force projection and sustainment for planning and operation execution.<sup>24</sup> Sense and Respond Logistics (S&RL) integrates common command-and-control systems with improved technology embedded into tactical systems to provide diagnostic logistics data to develop a timely common logistics picture. This will support decision-making of commanders and agencies at all levels and enable predictive logistics actions and proactive management.<sup>25</sup> Implementation of these two capabilities will improve joint theater logistics management and support an integrated joint theater logistics effort. None of these concepts eliminates the need for an organizational structure to conduct the functions of JTLM, but they influence the development of the joint tools and processes used to improve the effectiveness and efficiency of joint theater logistic system.

Improving JTLM also includes the integration of all FL-FJC capabilities into the processes and tools employed by a specified organization to effectively orchestrate theater logistics. A capable JTLM structure must comprehend and assimilate the other six FL-JFC key capabilities: Joint Deployment/Rapid Distribution (JD/RD); Agile Sustainment (AS); Operational Engineering (OE); Multinational Logistics (ML); Force Health Protection (FHP); and Information Fusion (IF). These network-centric capabilities are interdependent. Effective and efficient JTLM depends on determining what management is required at the theater level and applying the processes and tools with the right logistic organization.<sup>26</sup> The goal remains to create a single theater logistics management system.<sup>27</sup>

### Lessons Learned

To describe the challenges associated with proper management of logistics in theater, this paper will briefly analyze logistics support during three military operations: DESERT SHIELD / DESERT STORM, SOMALIA, and Operation Iraqi Freedom (OIF). These three were chosen because they represent operations of different sizes, complexity of support, and duration. Together they reveal the evolution of theater logistics operations, identify consistent operational trends, and describe continued shortfalls in theater logistics management. In these operations commanders attempt to establish a single logistics organization to execute joint theater logistics. This analysis will reveal the importance of effective joint theater logistics management, history's impact on the development of doctrine, and support the development and selection of the best organizational structure to achieve JTLM.

#### Desert Shield / Desert Storm

DS / DS, the largest U.S. Military joint force deployment since Vietnam, initially followed normal single-Service logistics requiring each Service to deploy logistics capabilities to equip and sustain its own forces.<sup>28</sup> In an attempt to establish a single point of contact for theater logistics, Lieutenant General William G. Pagonis, formerly the FORSCOM J4, deployed to Saudi Arabia to initially take charge of Host-Nation Support. He was subsequently designated the commanding general of the 22<sup>nd</sup> Support Command (Provisional) (22<sup>nd</sup> SUPCOM). An unorganized unit prior to this time, it was an "ad hoc" organization that started with a small number of logistics experts deployed at the request of LTG Pagonis. It increased with the arrival with personnel from units, such as the 7<sup>th</sup> Transportation Group, that were "shanghaied" and quickly trained on the spot to conduct immediate theater reception activities for route and movement control of trucks and buses, for contracting, for engineering, and for sea and airport management. Theater level logistics support for the US Army resided primarily in the reserve

forces and did not arrive until mid-September, which allowed “hijacked” personnel to return to their units.<sup>29</sup> After over a month in theater, the 22<sup>nd</sup> SUPCOM was just becoming operational and developing processes to manage theater logistics responsibilities.

To track the deployment and manage the commodities and services in the huge volumes needed to support the Army and provide common-user items such as food and fuel for the Air Force and Marines ashore, LTG Pagonis established a logistics operations center (LOC) into a large management center. He set the daily priorities for the logistics and sustainment operations on land.<sup>30</sup> The LOC focused on day-to-day operations using simple tools and processes, many of which were not automated. To better support the future offensive operation of DESERT STORM, LTG Pagonis established a separate Logistics Cell (Log Cell), using a small ad hoc group of talented logisticians to develop logistics plans for contingencies, to anticipate theater logistics requirements and provide options to mitigate expected shortfalls.<sup>31</sup> The 22<sup>nd</sup> SUPCOM produced logistics situation reports (LOGSITREPs) to provide the CENTCOM Commander with the only theater oriented logistics picture. The LOGSITREP provided deployment information from the sea and airports-of-debarkation in gross terms—such as the number of flights and ships, personnel, major weapons systems, vehicles, or containers arriving a particular day and not associated with units that would equate to capabilities. The report provided the status of supply in terms of commodity classes for the common-user-items like food, water and fuel in raw numbers, and munitions in short tons. But it failed to provide specific types and quantities of munitions available. An ARCENT organization the 22<sup>nd</sup> SUPCOM had limited visibility of Air Force or Marine Corps logistics and knew nothing about the Navy and coalition forces.<sup>32</sup> Hence it had only a partial picture of theater logistics for the joint force commander as the other Services managed their unique logistics needs.<sup>33</sup>

All Services experienced problems with visibility of sustainment and support capabilities that created bottlenecks in deployment and effective support to respective forces. Most importantly, the lack of integration failed to achieve a high level of efficiency in joint theater logistics. Each Service used creative methods through their Service stovepipes to mitigate specific logistics shortfalls. For example the Air Force established a daily “Desert Express” flights from the United States to provide “war stopper” aircraft maintenance materiel.<sup>34</sup> The 22<sup>nd</sup> SUPCOM managed the heavy lifting of common-user items such as food, fuel, water, and munitions for all land based forces. It proved its value and necessity for a joint logistics command of large scale operations. Although not organized, trained, or enabled with the processes, tools and rules for effective and efficient management, it demonstrated how

leadership and adaptive capabilities can accomplish the tremendous challenges of supporting joint warfare.

DS/DS also demonstrated the need for better logistics information management tools and greater integration of service logistics capabilities to create a comprehensive logistics picture for the joint force commander.<sup>35</sup> Logistics information is critical to commanders, and not just logisticians, to exercise control at the strategic, operational, and tactical levels of war. Theater level balancing and managing Service's responsibilities for sustaining forces and creating the ability to effectively command and control joint theater logistics are challenges of the joint force commander. The CENTCOM Commander attempted to use the 22<sup>nd</sup> SUPCOM as a single joint theater logistics management element. But due to the ad hoc nature and capabilities of the 22<sup>nd</sup> SUPCOM, and the lack of Service logistics integration and reporting, it gain only limited unity of effort. This significant lesson learned contributed to current Joint Doctrine for developing JTLM with a service organization.

#### Somalia

Operations in Somalia from August 1992 until March 1994 provide an example of a smaller joint and multinational military operation with the initial mission of providing humanitarian assistance to the famine-plagued region. This operation later evolved into a peace enforcement mission. U.S. military involvement began in August 1992 as Operation *Provide Relief* with the deployment of a U.S. Marine-led humanitarian assistance survey team, which assessed relief requirements in Kenya and Somalia. Then a joint task force was formed to conduct airlift of food and supplies into Somalia and Northern Kenya.<sup>36</sup> The security environment deteriorated around the primary sea port at Mogadishu, blocking the off-load and distribution of humanitarian relief supplies. President Bush then initiated Operation *Restore Hope* and directing the deployment of military forces to lead and support a multinational coalition known as the United Task Force (UNITAF).<sup>37</sup> UNITAF command and control centered on a U.S. Marine Task Force three-star headquarters. Its Corps Forward Service Support Group (FSSG) [today designated the Combat Logistics Group (CLG)] served as the logistics center to orchestrate humanitarian and multinational support operations.<sup>38</sup> The mission was to provide humanitarian assistance, establish a secure environment for the distribution of relief supplies, and conduct a hand-over to a U.N. peacekeeping force.<sup>39</sup> UNITAF operated from December 1992 until May 1993; then it quickly transitioned to the U.N. Operation Somalia II (UNSOCOM II) under U.N. During the UNITAF phase, the Joint Task Force Support Command (JTFSC), was built around the 13th Corps Support Command, which deployed and relieved the Marine FSSG. Both of these units

were overwhelmed by the arrival of and support for coalition forces. They served as the joint and combined theater logistics managers, but they were ill-prepared for their joint and multinational theater logistics mission.<sup>40</sup> Inefficiencies and poor accounting resulted, but they demonstrated the critical need for an effective logistics organization to conduct theater logistics for joint and combined operations in an austere and dynamically changing environment.

The JTFSC and FSSG logistics forces encountered difficulties supporting 21 different nations primarily due to a lack of experience and understanding of each nation's support requirements, capabilities, agreements, responsibilities, and accounting. Compounding the support mission was the involvement of 49 nongovernmental humanitarian organizations, which necessitated the establishment of a civil-military operations center (CMOC).<sup>41</sup> The U.S. logistics forces did not understand multinational agreements for UNITAF or UNOSOM II or the methods to validate coalition requirements. The absence of established coalition procedures frustrated effective logistics support due to an inability to capture costs and effectively execute inherent fiduciary accounting responsibilities.<sup>42</sup> The CLG and COSCOM are functional logistics units with a staff structure capable of serving as a nucleus for a joint and combined logistics command. But they need training on joint and multinational theater logistics operations.<sup>43</sup> Their efforts succeeded in setting a framework for the United Nations Logistics Support Command (UNLSC) to assume its responsibility for logistics operations under the UNOSOM II.

This operation demonstrated that the dominate unit and logistics formation should expect and prepare to provide common user items and service support to joint and multinational forces, and this is the logical choice for a joint force commander. For smaller operations, the selected logistics unit may be an Army COSCOM, a Marine CLG, or an even smaller unit such as the new Army Sustainment Brigade. Theater enablers, such as terminal operations and strategic communications, are required for most all operations. Depending on the nature and size of the operation, these capabilities will fall under at least the tactical control of the logistics unit tasked with theater responsibilities. The combatant commander's staff or a designed JTF headquarters must prepare detailed plans with specified procedures for coalition and joint support. In summary, this operation demonstrated a need for improved joint doctrine for the development of a single command authority for logistics and for joint logistics training of both joint and multinational operations.<sup>44</sup>

#### Operation Iraqi Freedom

Joint operations in Iraq provide an example of exercising JTLM with an Army Theater Support Command and a full complement of CENTCOM J4 centers, offices, and boards.

Operation Iraqi Freedom (OIF) deployed a major but significantly smaller joint force than DS/DS through Kuwait, using established host-nation support agreements and limited theater base from ongoing operations. This initial theater logistics capability was not sufficient to support the force employed or to operate over the extended line of communications (LOC) throughout Iraq. CENTCOM tasked ARCENT—the Army Service Component Commander (ASCC)—with joint theater logistics responsibilities for OIF using the 377<sup>th</sup> Theater Support Command, a reserve unit from COUNS. Due in part to request for forces process that produced over 50 separate deployment orders in the initial deployment plan and the operational decision to conduct a “rolling start”, the 377<sup>th</sup> TSC and 3<sup>rd</sup> Corps Support Command (COSCOM) distribution assets were delayed.<sup>45</sup> This shortage of theater logistics capabilities placed this organization at a disadvantage for effectively meeting the needs of the warfighters. The GAO noted poor physical security at ports and other distribution points and shortages of repair parts.<sup>46</sup> Analysis of this operation by LTC Victor Maccagnan stated: “During the 14-day period between April 30 and May 14, 2003 the 4<sup>th</sup> Infantry Division failed to receive, on seven separate occasions, either its allotted shipment of food or bottled water until the day it was consumed.”<sup>47</sup> Ammunition shortages experienced by forward units was most likely due to insufficient intratheater airlift and ground transportation.<sup>48</sup> Additionally, GAO reports indicated there was a loss of over \$1.2 billion dollars of materiel shipped to the theater and unaccounted for.<sup>49</sup>

To establish control of theater logistics for three separate JOA's—Kuwait-Iraq, Afghanistan for Operation Enduring Freedom, and Somalia for Task Force Horn of Africa—the CENTCOM J4 established a series of offices, centers, and boards. But the late arrival of theater support assets from the 377<sup>th</sup> TSC and an inability to immediately assume management control of the OIF Theater logistics, the CENTCOM J4 staff needed to make daily OIF logistics decisions. As the 377<sup>th</sup> TSC deployed and established its organization, it took greater control of theater logistics responsibilities. Using the 377<sup>th</sup> TSC eliminated the need for developing an ad hoc organization in theater and improved on the lessons learned from DS/DS.

#### Current Doctrine and Authorities

The need to use logistics management processes to provide unified focus and optimize support of deployed forces is not new. Lessons learned from military operations over the last fifteen years demonstrate the need for effective joint theater logistics management. Joint Publication 4-0 *Doctrine for Logistics Support of Joint Operations* recognizes JTLM as a way to achieve a unified logistics effort and provides theater commanders with six organizational options to best fulfill logistics needs. Additionally, Joint Publication 4-07, *Joint Tactics*,

*Techniques, and Procedures for Common-User Logistics During Joint Operations*, prescribes ways of assigning a lead service the responsibility for providing common-user logistics (CUL) to realize joint logistics efficiencies. The authority and processes to support CUL operations are contingent on developing inter-Service support agreements (ISSAs), acquisition and cross-servicing agreements (ACSAs), and observing DoD directives and instructions.<sup>50</sup> The Combatant Commander can also request additional authority to direct cross-service support from the Secretary of Defense which can direct one service to support another.<sup>51</sup> A good example of wartime executive authorities delegated to the Army that supports unity of effort for land based logistics is as follows:

... inland logistics support, inland class I (subsistence), supply support of United Nations peacekeeping forces, operation of common-user ocean terminals, intermodal container management, transportation engineering for highway movement, common-user land transportation, logistics applications of automated marking and reading symbols, the Military Customs Inspection Program, disposal of waste explosives and munitions, military troop construction, airdrop equipment and systems, power generation equipment and systems, land-based water resources, overland petroleum, oil, and lubricant support, the Military Postal System, the DoD Enemy Prisoners of War and Detainee Program, and blood support.<sup>52</sup>

Title 10 US Code provides the legal authority for service components to logistically support their forces and likewise provides a COCOM with the directive authority for logistics of assigned forces. Effective employment of these legal authorities and command relationships under JP 0-2 in OPLANS for joint operations improves logistics management and fosters synergy. Joint doctrine and Title 10 authorities will identify the current means available to a theater commander to develop JTLM capabilities.

Joint doctrine recognizes the requirement to effectively manage logistics of joint military operations and provides combatant commanders with options to improve logistics management. Joint Pub 4-0 describes six different organizational structures to orchestrate theater logistics: assign joint logistics requirements to a predominate service; delegate to a subordinate service organization; delegate to a JTF commander; augment the Command's J-4; expand the joint readiness center (JRC); or create a stand-alone logistics agency.<sup>53</sup> These structures along with the emerging suite of processes and tools from transformation will improve support and create a more capable joint force. Each of these structures, along with the logistics and appropriate doctrine, will now be examined to determine the best way to achieve joint theater logistics management.

Joint Publication 4-07, *Joint Tactics Techniques and Procedures for Common-User Logistics During Joint Operations*, prescribes methodology to eliminate duplication of logistics

capabilities provided by Service components, DoD Agencies, and host-nation and contract support in theater by means of a common-user logistics concept. Common-user logistics (CUL) designates the “materiel or service support shared with or provided by one or more Services, DOD Agencies, or multinational partners to another Service, DoD agency, non-DoD agency, and/or multinational partner in an operation.”<sup>54</sup> This doctrine provides practical ways to develop logistics efficiencies for various supply commodities and service support by assigning responsibilities for specific common-user items to one or more service or agency.

The concept of CUL employs two basic organizational options—the single-Service logistics support option and/or a lead-Service or agency CUL support option. Under the single-Service logistic support option, Services retain their normal support responsibilities and processes and may execute CUL support on a limited basis for a particular mission or as a back-up method to another Service.<sup>55</sup> Under the lead-Service or agency CUL support option, combatant commanders designate a lead-Service or agency to provide selected CUL support to one or more Service components or agency.<sup>56</sup> For example, the US Army may be responsible to provide all common-user land transportation support to other Services, such as the Marines and US Air Force elements in a JOA. The single-Service option is a simple structure that allows each Service component to use established procedures and command relationships in planning and executing their Service support responsibilities. It creates redundant operational and tactical logistics capabilities at the theater level for each Services specific infrastructure, is not economical , and increases the overall theater logistic footprint. The lead-Service option designates one Service's logistics organization or agency to manage all the operations for a specific commodity or set of commodities to produce efficiency, reduce redundancy, and lesson the overall logistics footprint. But, this option requires the development and implementation of detailed procedures and often new command and control arrangements.

JP 4-0 appendix B provides guidance for implementing JTLM to achieve efficiency and unity of logistics effort; it also incorporates the advantages of common-user logistics support. JTLM attempts to create a common logistics picture, increase asset visibility, enable anticipatory logistics management through rapid access to operational information and creates a single theater logistics management system. The ultimate goal is increased logistics capabilities using a smaller theater logistics footprint with greater flexibility.<sup>57</sup>

The six organizational options available for establishing an organization to support management of joint theater logistics were briefly identified earlier. Since several are similar, for this analysis the six options are combined into three: the first is using a predominate Services' logistics organization or a JTF commander; the second is augmenting the Command's J-4



and/or expanding the joint readiness center (JRC); and finally the third is the creation of a stand alone logistics agency. The non directive nature of joint doctrine allows great flexibility with determining an organizational solution; hence combining these options is in agreement with the flexibility in JP 4-0 and JP 4-07.

The options of a using a Service organization as a nucleus to conduct JTLM or delegating these responsibilities to a JTF are grouped together. This approach would task a similar logistics organization such as the Army Theater Support Command (TSC) or Marine Corps Combat Logistics Group (CLG) to manage and perform designated theater logistics functions for a joint force. There are many advantages of using a Service organization, particularly one which is the dominant provider and user. Within the criteria of logistics principles, it employs an attainable organization with a command and control structure to orchestrate logistics management and limits ad hoc arrangements. Assigning as many theater logistics management responsibilities to a single capable organization increases the economy of theater logistics efforts and provides a responsive headquarters to respond flexibly to changing needs. It identifies redundant capabilities that can be reduced or eliminated and ultimately minimizes the overall theater logistics footprint. Within the criteria of logistics efficiencies, it creates unity of command and control, streamlines management, achieves a greater balance of logistics and combat forces early in an operation. It also provides a consolidated method of allocating scarce resources while implementing greater logistics discipline. Within the criteria of logistics effectiveness, this option forces Service cooperation, detailed planning, and logistics capability integration to enable the projection, deployment, and sustainment of the joint force. Overall this organizational structure creates many of the same advantages of reducing Service redundancy, logistics footprint and consolidating management discussed for CUL. This structure is advantageous for a geographic commander that is executing multiple joint operations as occurs in CENTCOM with GWOT. Placing a Service organization in charge of executing all joint theater logistics for each JOA would minimize the management requirements of the combatant commander's J-4 and allow the J-4 to better focus on responsibilities for the remainder of the AOR.

The disadvantages of this structure in regards to logistics principles are that it creates more complex support arrangements that, until fully established, may be less responsive at the start of an operation. It is also initially not very efficient as units shift from Service systems in peace to a unique joint system in war. Using the predominate Service in theater should minimize the impact of this structure until more effective interdependent and integrated systems are employed among the Services. The effectiveness it is dependent on the active cooperation

and participation of Service components and the functional or management capabilities of the elements assigned to theater support.

The second structure simply augments the J-4 or an existing Logistics Readiness Center (LRC). This is not a new or innovative approach; for the most part it is a status quo option. In this structure, the J-4 would expand its staff with individual augmentation from each Service component and develop additional offices, boards and centers to manage items and services. The advantages of this option using logistics principles is that it is a simple well understood method that is already inculcated in each Service's culture, so it is readily attainable. This method adopts a more single-Service approach to sustainment in establishing JTLM capabilities to allocate and apportion common-user support among Service elements. The more integrated the theater logistics plan, the greater the need for larger more capable logistics management offices centers and boards. The efficiency advantage of this option is that the J-4 organizes management capabilities tailored to a specific operation using borrowed or tasked man power resourced from Service components. This is an effective method for initial deployment operations to synergize deployment. However, after deployment it requires clear procedures and processes with assured communications and timely responsive JTLM actions focused on forward operations. The disadvantages from a logistics principle perspective are that it creates redundant management at the tactical, operational, and higher staff levels that loses economy and responsiveness due to management layering. The disadvantages for efficiency are in the lack of synergy obtained in creating a collection of ad hoc organizations. Holding management and direction at the LRC creates management redundancies and a more bureaucratic system. Additionally, to be efficient requires JTLM elements to integrate or employ joint or Service logistics systems to direct allocation and distribution authority for an item, which may require some form of an off-line process. Effective at the strategic to operational level, at the tactical level effectiveness is questionable based on the ad hoc capabilities and the span of control to ensure timely support, which often requires logisticians in theater to create work around solutions.

The last option is to establish a stand alone logistics agency with the primary function of management and execution of logistics functions. This option requires using the functional capabilities of Service components and the ad hoc development of a staff organization to operate at the operational level. It requires the development of new command and control relationships and implementation of unique processes similar to LRC operations. This method maybe best suited for specific functions such as contracting support, but it must have a functional element forward. The advantages of this in applying logistics principles are in

creating a flexible organization to satisfy theater sustainment for a specific or set of functions. The effectiveness is contingent on the development of clear processes that are easily understood and applicable to forces forward. Once again there is danger in creating inconsistent processes without detailed tactics, techniques, and procedures in joint and Service doctrine with personnel trained in executing these functions. The disadvantages based on logistics principles are increased complexity with a new organization and procedures that may initially suffer shortfalls in responsiveness and is less attainable from its ad hoc nature. The effectiveness of this option may be limited to a specific functional or for a limited operation. But, it does not appear feasible to develop single agency capable of orchestrating all theater logistics, unless it is adopted as a separate and expanded defense capability such as expanding greatly the concept of USTRANSCOM Deployment Distribution Operation Center (DDOC) to incorporate the complete tactical end of the logistics pipeline and theater logistics functions beyond distribution such as engineering, maintenance, and medical operations.

#### Summary Analysis

Development of a joint theater logistics organization will provide the necessary operational link between the strategic and tactical logistics system, thereby ensuring effective “end-to end” logistics support. Joint force commander’s are currently challenged to develop an effective and efficient JTLM system that integrates strategic and Service logistics processes and supports the joint fight. To accomplish unity of theater logistics effort and overall unified action, joint force commanders have opted to assign joint theater logistics responsibilities to organizations—such as the 22<sup>nd</sup> SUPCOM in DS/DS, CLG and COSCOM in Somalia, and the 377<sup>th</sup> TSC in OIF. Combatant Commander’s J4s operate Logistics Readiness Center (LRC) and other centers, offices, and boards in an ad hoc fashion to control and management theater logistics and provide an operational link to the strategic level. But, they are dependent on the forward deployed logistics organization for the operational-to-tactical link and the day-to-day theater logistics execution and management in a JOA. The effectiveness of these organizations is directly dependent on the processes and tools available to conduct and manage assigned joint logistics functions. Transformation’s FL-JFC should improve these capabilities by enabling greater visibility of theater logistics resources and integration of Service requirements. But, FL-JFC cannot replace the physical logistics efforts performed by logistics units, or address the operational impacts of an asymmetric threat, or replace the need for capable leaders forward deployed to effectively react in the fog of war. Commanders with mission orders and authority to direct execution of theater logistics are the best suited to accomplish this task and gain unity

of effort. All of the doctrinal management options are feasible, acceptable and suitable for effective management, but clearly this research supports using a Service organization as a nucleus is the best option to achieve a more efficient JTLM system that adheres best with logistics principles.

Effectiveness criteria extrapolated from joint doctrine logistics considerations requires a JTLM organization that can employ forces, determine limiting logistics factors, synchronize and integrate logistics, control movements, and address industrial base and contracting services requirements. This research supports that using a Service organization for JTLM improves the joint reception of forces and building of combat power as well as synchronizes and integrates functional logistics efforts. The J4 and LRC, as well as a stand-alone agency, can achieve much of the same, but the LRC fails to fully integrate capabilities through decentralized management, and an agency is not well-suited to functionally control deployment support. While the DDOC capability is the closest agency type structure capability currently available to manage the strategic to operational level deployment and sustainment pipeline, it is best utilized when tied into the J4 staff or with the assigned JTLM organization forward. Contracting services are not sufficiently available in a Service organization and requires significant augmentation.

The efficiency criteria of a forward impetus, balance, unity of command, apportionment, wartime accommodation, logistics discipline, reserve, and pre-positioning are best met through a Service organization. A deployed Service organization or a stand alone agency both achieve a high level of forward impetus with a current situational awareness of the logistics situation directly tied to execution. This creates a balance of tailored logistics capabilities for the required combat forces and unifies logistics efforts for the commander. This research paper supports a Service organization as the best structure to develop plans and methods to resource and create a logistics reserve or surge capabilities with combined joint capabilities. The LRC and use of offices and boards can produce unity of effort, but its decentralized management structure fails to provide unity of command and management at the operational and tactical level. Unity at the combatant command level needs to extend to the operational and tactical levels to more efficiently integrate and synchronize joint theater logistics capabilities in a JOA.

By applying logistics principles, a JTLM system centered on a Service organization provides an attainable command element that can consolidate functions for economy of effort in an organization that can responsively execute joint theater logistics operations. This more complex structure requires integration of joint Service requirements, capabilities, and processes. This reduces ad hoc arrangements and, with the implementation of transformation initiatives, will reduce this complexity as new joint processes and tools are developed and implemented.

Standing up a stand alone agency assumes a greater degree of ad hoc operations with too much complexity. Augmenting the J4 and LRC with the creation of offices and boards is a flexible and tailorable option that relies on ad hoc arrangements. It does not support the forward integration of joint logistics capabilities to reduce Service redundancies and, by its decentralized management, is less responsive to daily friction. The comparison table summarizes this assessment.

Criteria / Options	Service organization /Predominate Service &/or JTF	Augment J4 & LRC	Stand Alone Agency
<b>Log Principles:</b> Responsiveness, Simplicity, Flexibility, Economy, Attainability, Sustainability, & Survivability	++++ (Flexible-Economy- Attainable-Responsive) - (Complex)	+ (Flexible) - - - (Redundant-Ad Hoc attainment-Less responsive)	++ (Flexible- Economy) - - (Complex-Ad hoc Attainment)
<b>Log Considerations:</b> <b>Efficiency Criteria:</b> Forward Impetus, Balance of Combat & Logistics, Unity of Command, Apportionment & Allocation, Wartime Accommodation, Logistics Discipline, Logistics Reserve, Pre- positioning	++++ (Forward Impetus-Balance of Cbt & Log-Unity of Command-Logistics Reserve)	- - (Reachback-control and Poor unity of command)	+++ (Forward Impetus- Balance of Cbt & Log-Unity of Command)
<b>Effectiveness Criteria:</b> Employment, Determining Logistics Factors, Synchronization, Integration, Movement Control, Industrial base requirements, Contracting	+++ (Employment- Synchronization- Integration)	+++ (Employment, Synchronization- Contracting) - (Integration)	++ (Synchronization- Contracting) - (Employment)
<b>TOTALS</b>	<b>10+</b>	<b>2-</b>	<b>4+</b>

TABLE 1. COMPARISON TABLE

#### Korea Joint Logistics Command (CONOP)

PACOM and U.S. Forces Korea (USFK) are implementing a concept for the employment of a Joint Force Support Component Command (JFSCC) in the Korean Theater of Operations (KTO) using the U.S. Army 19<sup>th</sup> Sustainment Command (Expeditionary) as the core element of the organization. This is an example of using a Service organization option to establish a single joint logistics command to execute theater logistics responsibilities.<sup>58</sup> The need for testing this concept was identified by General Laporte, Commander of US Forces Korea (USFK) in April 2005 when he stated: "I believe that Joint Theater Logistics (JTL) can be a combat multiplier...I

recommend we explore the possible means and associated timelines for establishing a JFSCC in Korea.”<sup>69</sup> The emerging initiative supports the need to integrate joint logistics support before the onset of conflict. Using current doctrine, Korea is pressing ahead with this bold initiative.

Within the Korean theater for the last 20 years, there have been significant inefficiencies and complexities that have contributed to redundancies and competition for scarce resources. USFK employs the “Single Service” support structure developed over the years by each Service executing their Title 10 responsibilities. With the repositioning of forces as the military transforms and the demands of the Global War on Terrorism, there is a renewed effort to gain greater efficiency in theater logistics operations. This initiative intends to gain a greater degree of logistics economy in the theater. Korea will incremental implement this structure over two years to ensure the continuity of an effective system and building a system that is as responsive as the ones being replaced. Additionally, it intends to create a more sustainable system leveraging the logistics expertise in the 19<sup>th</sup> SB(E) and Service component plugs that is lacking in the lean USFK staff organization.

This structure is focused on more effectively eliminating theater distribution choke points and improving intra-theater and inter-theater movements. It intends to be more efficient by improving command and control, ease the transition from armistice to war, achieve a smaller overall logistics footprint, and provide a better balance of combat and logistics forces in theater. The disadvantages are the lack of effective tactics, techniques, and procedures for consolidated joint logistics operations and gaining a high level of integration using the PACOM commander's directive authority outside of war. The challenge is to maintain doctrinally responsive and effective systems for all forces as the theater spirally implements this concept over the next two years.

### Conclusion

Joint theater logistics management starts with the development of an effective and efficient joint theater logistics system, which includes the selection of an organization that can best meet the theater's functional and management needs. To provide JTLM for most medium to large land-based joint operations of any enduring duration, joint force commanders should consider the advantages of assigning JTLM responsibilities to capable Service logistics organizations such as the US Army's Theater Sustainment Command (TSC) or its deployable expeditionary element, as its primary option. This option provides a proven record of incremental successes and the single best method of gaining and maintaining unity of theater logistics. Assigning responsibility to a subordinate logistics commander forwardly deployed, not

only for management but also for functional theater logistics responsibilities, provides the greatest flexibility in planning and executing JFC and CoCOMs' priorities in a timely method. The TSC provides a trained and prepared organization that allows the J4 to leverage logistics management, with a forward impetus, and creates a more responsive system with a reduced overall logistics footprint.

Joint doctrine must develop the tactics, techniques, and procedures that clarify and support joint theater logistics operations for this Service organizational structure. As the military transforms, the entire family of FL-JFC capabilities to include JTLM, along with the development of new joint processes, rules, and tools, must provide more descriptive TTP's. This will guide joint logistics integration at the operational and tactical levels to improve not only the effectiveness but also the efficiency of joint theater logistics. Services must develop their capabilities to participate within or in coordination with this structure. The Korean JFSCC initiative can serve as an excellent test bed for integrating the spiral development of joint logistics tools and processes. As Korea identifies seams in support, the Services and the joint community must develop and obtain the capabilities and authorities to enable improved integration and efficiencies. Finally, these efforts should not overlook the opportunity to develop this concept into an expeditionary capability. The Army, as well as the Marines, should prepare and train their smaller Sustainment Brigades and CLG with JTLM capability. This theater level logistics capability will provide the vital link from the strategic to tactical level that has been lacking or weak in past operations.

Once the Korean test is completed, the next step is to develop and deploy similar capabilities to austere and unimproved theaters. This area of joint logistics operations and effective management needs the greatest attention. Deploying the best organizational capability for orchestrating theater management and testing it in exercises should improve joint logistics transformation efforts and Service integration. The goal should be to create training standards and effective authorities and procedures designed to improve joint theater management capability as the military continues its logistics transformation.

#### Endnotes

<sup>1</sup> U.S. Department of Defense, *Focused Logistics Roadmap, Vol 1*, (Washington, D.C.: U.S. Department of Defense, September 2005), 1-2.

<sup>2</sup> MG(Ret) Juskowiak referenced the Army in this statement but spoke of joint force operations and joint interdependence for deployment and sustainment in the context of this

article: Terry E. Juskowiak, "Joint and Expeditionary Logistics for a Campaign-Quality Army", *Army Logistician*, vol. 36, iss 5, (Sep/Oct 2004): 3.

<sup>3</sup> U.S. Joint Chiefs of Staff, *Focused Logistics: Campaign Plan 2004 Edition*, (Washington, D.C.: U.S. Joint Chiefs of Staff, 2004), 14.

<sup>4</sup> Ibid.

<sup>5</sup> U.S. Joint Chiefs of Staff, *Doctrine for Logistics Support of Joint Operations*, Joint Publication 4-0 (Washington, D.C.: U.S. Joint Chiefs of Staff, 6 April 2000), B-2-B-8.

<sup>6</sup> *Focused Logistics: Campaign Plan 2004*, iv.

<sup>7</sup> Joint Publication 4-0, II-1.

<sup>8</sup> Logistics principles described in joint logistics doctrine are the logistical complements to principles of war and guide the analytical thinking and planning logistic operations. Principles include: Responsiveness, Simplicity, Flexibility, Economy, Attainability, Sustainability, and Survivability. Joint Publication 4-0, II-1-II-4.

<sup>9</sup> Logistics considerations are more specific guidance for the development of joint logistics systems and plans. There are a total of 15 considerations. I broke these into two groups, the first as criteria to evaluating effectiveness, and the second to evaluate efficiency, of the JTLM organizational options provided in joint doctrine. Joint Publication 4-0, II-4 – II-9.

<sup>10</sup> Ibid.

<sup>11</sup> A. K. Cebrowski, *Military Transformation – A Strategic Approach*, (Washington, D.C.: U.S. Department of Defense, Pentagon, Fall 2003), 7.

<sup>12</sup> Ibid., 8-9.

<sup>13</sup> U.S. Department of Defense, *Department of Defense Logistics Transformation Strategy: Achieving Knowledge-Enabled Logistics*, (Washington, D.C.: U.S. Department of Defense, 10 December 2004), 3.

<sup>14</sup> Ibid., 5.

<sup>15</sup> Ibid., 4.

<sup>16</sup> U.S. Department of Defense, *Focused Logistics-Joint Functional Concept*, version 1.0, December 2003. (Washington, D.C.: U.S. Department of Defense, December 2003), i.

<sup>17</sup> *Focused Logistics: Campaign Plan 2004*, 8.

<sup>18</sup> Ibid., 10.

<sup>19</sup> Ibid.

<sup>20</sup> *Department of Defense Logistics Transformation Strategy: Achieving Knowledge-Enabled Logistics*, 6.



<sup>21</sup> Ibid.

<sup>22</sup> Christopher R Paparone, "Who Rules Logistics? Services Versus COCOM Authority", *Army Logistician*, vol 37, iss 6, (Nov/Dec 2005), 53: [database on-line]; available from ProQuest; accessed 6 March 2006.

<sup>23</sup> Ibid., 54.

<sup>24</sup> *Focused Logistics: Campaign Plan 2004*, 16.

<sup>25</sup> Ibid., 16-17.

<sup>26</sup> Ibid., 75.

<sup>27</sup> Joint Publication 4-0, B-2.

<sup>28</sup> David Schrady, "Combatant Logistics Command and Control for the Joint Force Commander", *Naval War College Review*, (Summer 1999) 61.

<sup>29</sup> References to the LTG Pagonis's methods of forming the 22<sup>nd</sup> SUPCOM with a small ad hoc core of experts and barrowing personnel from arriving units and their assigned missions were extrapolated from: LTG William G. Pagonis with Jeffery L. Cruikshank, *Moving Mountains Lessons in Leadership and Logistics from the Gulf War* (Boston, Massachusetts: Harvard Business Press, 1992), 64, 75-77, 84, 91, 97-99, 100-104.

<sup>30</sup> LTG Pagonis described how he organized a large logistics operations center (LOC) to track and manage day-to-day theater logistics operations. LTG William G. Pagonis with Jeffery L. Cruikshank, *Moving Mountains Lessons in Leadership and Logistics from the Gulf War* (Boston, Massachusetts: Harvard Business Press, 1992), 102-103.

<sup>31</sup> LTG Pagonis described his innovated development of a separate logistics cell (log cell) to conduct future theater logistics planning. LTG William G. Pagonis with Jeffery L. Cruikshank, *Moving Mountains Lessons in Leadership and Logistics from the Gulf War* (Boston, Massachusetts: Harvard Business Press, 1992), 103-104.

<sup>32</sup> The statements, in this paragraph, reference the content and scope of the 22<sup>nd</sup> SUPCOMs logistics situation reports (LOGSITREP), and their joint logistics content are derived from David Schrady, *Combatant Logistics Command and Control for the Joint Force Commander*, *Naval War College Review*, (Summer 1999) 54-55, 60-62.

<sup>33</sup> David Schrady makes this conclusion based the *Gulf War Air Power Survey* which notes (p57) that "no office or function was charged with (and staffed for) command or orchestration of CENTCOM logistics at the overall theater level." It does appear from LTG Pagonis's *Moving Mountains* he felt he was the single command authority for logistics but the 22<sup>nd</sup> SUPCOM did not possess the capability or authority to provide a comprehensive logistics picture for the JFC. David Schrady, "Combatant Logistics Command and Control for the Joint Force Commander", *Naval War College Review*, (Summer 1999) 61-62.

<sup>34</sup> Schrady., 57.

<sup>35</sup> Ibid., 62.

<sup>36</sup> Kenneth Allard, *Somalia Operations: Lessons Learned*, (Fort McNair, Washington D.C.: National Defense University Press, 1995), 13-14.

<sup>37</sup> Ibid., 15-16.

<sup>38</sup> Jeanette K. Edmunds, "Organizing Logistics For Peace And War: The Necessity Of A Trained Joint Logistics Support Command Headquarters," in *Essays on Strategy XIII*, ed. Mary A. Sommerville (Washington, D.C.: National University Press, 1996), 236.

<sup>39</sup> Allard., 16.

<sup>40</sup> Edmunds., 236-237.

<sup>41</sup> Ibid., 238.

<sup>42</sup> Ibid., 237.

<sup>43</sup> A summary of lessons learned from WWII to Somalia concluded that due to the ad hoc nature of theater logistics organizations they are typically untrained and ill prepared for joint and multinational operations. Jeanette K. Edmunds, "Organizing Logistics For Peace And War: The Necessity Of A Trained Joint Logistics Support Command Headquarters," in *Essays on Strategy XIII*, ed. Mary A. Sommerville (Washington, D.C.: National University Press, 1996), 239-240.

<sup>44</sup> Ibid., 240-243.

<sup>45</sup> U.S. General Accounting Office, *Defense Logistics: Actions Needed to Improve the Availability of Critical Items during Current and Future Operations*, GAO-05-275 Defense Logistics (Washington, D.C.: U.S. General Accounting Office, 8 April 2005), 42-43; available from <http://www.gao.gov/new.items/d05275.pdf>; Internet accessed 6 March 2006.

<sup>46</sup> U.S. General Accounting Office, *Defense Logistics: Preliminary Observations on the Effectiveness of Logistics Activities during Operation Iraqi Freedom*, GAO-04-305R Defense Logistics (Washington, D.C.: U.S. General Accounting Office, 18 December 2003), 4-5; available from <http://www.gao.gov/new.items/d04305r.pdf>; Internet accessed 6 March 2006.

<sup>47</sup> Victor Maccagnan Jr., *Logistics Transformation—Restarting A Stalled Process*, SSI Monograph (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, January 2005), 11; available from <http://www.strategicstudiesinstitute.army.mil/pubs/display.cfm?PubID=593>; accessed 6 March 2005.

<sup>48</sup> Walter J. Boyne, *Operation Iraqi Freedom: What went right, What Went Wrong, and Why*, (New York: Forge Books, 2003), 124.

<sup>49</sup> *Defense Logistics: Preliminary Observations on the Effectiveness of Logistics Activities during Operation Iraqi Freedom*, GAO-04-305R Defense Logistics, 2.

<sup>50</sup> Joint Publication 4-07, I-4 to I-6.

<sup>51</sup> Paparone, 53.

<sup>52</sup> Ibid.

<sup>53</sup> Joint Publication 4-0, B-1.

<sup>54</sup> Joint Publication 4-07, I-1.

<sup>55</sup> Ibid., III-2 & III-3.

<sup>56</sup> Ibid., III-4.

<sup>57</sup> Joint Publication 4-0, B-2.

<sup>58</sup> The goals, objectives and timeline for the implementation of a joint force Support Component Command (JFSCC) on the Korean peninsula is derived from draft CONOPS provided by elements of the USFK staff for analysis, information and comment. These are not official documents, but clearly indicate the purposes and expectations of an initiative to gain greater unity and economy of logistics effort. Document obtained is the: United States Forces Korea, Draft—*Concept of Operations: Joint Forces Support Component Command (JFSCC)*, (29 Sept 2005) 1-2.

<sup>59</sup> Ibid., 2.